

## **CLAIMS:**

What is claimed is:

1. A board-to board electrical connector assembly for effecting a connection between two circuit boards, comprising:

a first connector having a dielectric housing for mounting on a first circuit board;

5 a plurality of first terminals mounted on the dielectric housing and each terminal including a tail portion for connection to an appropriate circuit trace on the first circuit board and a convex contact portion defining a continuous arcuate contact surface;

a second connector having a dielectric housing for mounting on a second circuit board; a plurality of second terminals mounted on the dielectric housing of the second connector and each second terminal including a tail portion for connection to an appropriate circuit trace on the second circuit board and a contact projection for sliding over the continuous arcuate contact surface of the convex contact portion of said first terminals upon mating of the connectors; and

10 whereby initial engagement of the contact projection of each second terminal with the convex contact portion of a respective one of the first terminals is at minimal engaging forces which increase as the contact projection slides over the convex contact portion and then decreases to allow the connectors to mate and the circuit boards to come together with minimal mating forces at a mated condition of the connectors.

2. The board-to-board electrical connector assembly of claim 1 wherein said first terminals are generally U-shaped with each first terminal having one leg of the U-shape defining said convex contact portion and the other leg of the U-shape defining a mounting portion for mounting the first terminal in the dielectric housing of the first connector.

3. The board-to-board electrical connector assembly of claim 2 wherein the tail portion of said first terminal is at a distal end of the mounting portion of the first terminal.

4. The board-to-board electrical connector assembly of claim 2 wherein the housing of said first connector has an open space between the convex contact portion and the mounting portion of a respective one of first terminals is that the convex contact portion is free to flex upon engagement with the second terminal of the second connector.

5. The board-to-board electrical connector assembly of claim 1 wherein the contact projection of each second terminal is at the distal end of a flexible contact arm.

6. The board-to-board electrical connector assembly of claim 5 wherein said flexible contact arm comprises one leg of a U-shaped contact section of the second terminal.

7. The board-to-board electrical connector assembly of claim 6 wherein the dielectric housing of said first connector includes a plug portion mateable in the U-shaped contact section of said second terminals, with the convex contact portions of the first terminals being at one side of the plug portion for engagement with the contact projections of the second terminals of the second  
5 connector.

8. The board-to-board electrical connector assembly of claim 6 wherein said U-shaped contact section of each second terminal is connected to a mounting section for mounting the second terminal in the dielectric housing of the second connector.

9. The board-to-board electrical connector assembly of claim 8 wherein the tail portion of each second terminal projects from the mounting section thereof.

10. A board-to board electrical connector assembly for effecting a connection between two circuit boards, comprising:

a plug connector having a dielectric housing for mounting on a first circuit board;

a plurality of plug terminals mounted on the dielectric housing and each terminal including  
5 a tail portion for connection to an appropriate circuit trace on the first circuit board, each plug terminal being generally U-shaped with one leg of the U-shape defining a mounting portion for mounting the plug terminal in the dielectric housing and the other leg defining a convex contact portion having a continuous arcuate contact surface;

a receptacle connector having a dielectric housing for mounting on a second circuit board;

10 a plurality of receptacle terminals each including a tail portion for connection to an appropriate circuit trace on the second circuit board, each receptacle terminal having a U-shaped contact section with one leg of the U-shape forming a flexible contact arm having a contact projection at the distal end thereof for sliding over the continuous arcuate contact surface of the convex contact portion of a plug terminal upon mating of the connectors as the plug terminals are inserted into the U-shaped  
15 contact sections of the receptacle terminals; and

whereby initial engagement of the contact projection of each receptacle 20 terminal with the convex contact portion of a respective one of the plug terminals is at minimal engaging forces which increase as the contact projection slides over the convex contact portion and then decreases to allow the connectors to mate and the circuit boards to come together with minimal mating forces at a mating condition of the connectors.

11. The board-to-board electrical connector assembly of claim 10 wherein the tail portion of said plug terminal is at a distal end of the mounting portion of the plug terminal.

12. The board-to-board electrical connector assembly of claim 10 wherein the housing of said plug connector has an open space between the convex contact portion and the mounting portion of a respective one of plug terminals so that the convex contact portion is free to flex upon engagement with the receptacle terminal of the receptacle connector.

13. The board-to-board electrical connector assembly of claim 10 wherein said U - shaped contact section of each receptacle terminal is connected to a mounting section for mounting the receptacle terminal in the dielectric housing of the receptacle connector.

14. The board-to-board electrical connector assembly of claim 13 wherein the tail portion of each receptacle terminal projects from the mounting section thereof.